

was felt by persons living in different houses, and furniture was jarred and seen to shake.

Mr. S. M. Luther, of Garrettsville, Portage County, Ohio, reports that during the early morning of the 18th a shock, supposed to have been due to an earthquake, occurred at that place. He also states that several persons in the vicinity of Garrettsville noticed the shock. The time at which it occurred was about 5.30 or 5.45 a. m.

The Signal Service observer at San Francisco, California, reports that at 4.33 a. m. (75th meridian time) on the 26th an earthquake shock was felt in the city and vicinity. The duration of the shock was about ten seconds and the vibration was apparently from east to west. A second shock was felt at 11.56 p. m. (75th meridian time) of the same date; it began with a slight tremulous motion which gradually increased in violence and terminated in a quick, sharp shock of three seconds duration. The vibration was apparently from north to south. The shocks were felt as far north as Napa and Petaluma.

San Rafael, Marin county, California, 26th: an earthquake occurred at 1.38 a. m., the vibration being from east to west, and at 8.56 p. m. another shock occurred, vibration from southwest to northeast.

Oakland, California, 26th: at 1.30 a. m. two shocks of earthquake occurred attended by a low rumbling sound; the direction of movement was from northeast to southwest or west. The second shock was a continuation of the first. At 8.56 p. m. on the same date, another shock occurred.

Sacramento, California: at 12.38 a. m. (75th meridian time), on the 31st, an earthquake shock occurred lasting several seconds; the direction of motion was from northeast to southwest.

Captain James Cooper, commanding the ship "Struan," from Panama to San Francisco, reports the following:

We left Panama on October 30th; on November 6th, in latitude N. 4° 17', W. 79° 40' (by account) the officer of the watch noticed a disturbance of the water—as in a tide-rip—close under the stern, and a few seconds later a shock was felt; it seemed as if the ship were bumping heavily on a sand bank, the shock being so severe that all hands came rushing on deck; it lasted about thirty seconds passing from southeast to northwest, and was followed about one minute later by a second shock of about twenty seconds duration, which caused the ship to tremble violently, but without any disturbance of the water.

The disastrous earthquakes which occurred in Spain during the closing days of December, were followed by numerous shocks in January; they are reported to have occurred during the night of the 1-2d, on the 2d, 5th, 12th, and during the night of the 17-18th. The following is from "The Philadelphia Times," of January 31, 1885:

WASHINGTON, January 30.—The consul of the United States at Malaga reports to the Department of State, in regard to the recent earthquakes in Spain, that fifty villages have been destroyed and two thousand lives have been lost. He also says that not less than thirty thousand persons have quitted the city of Malaga, and the rest of the people sleep in the open air. The death rate from disease has increased 300 per cent. At Joyena, a small river which ran through the town has entirely disappeared. At Albanuclos, the earth opened, swallowing the church and other buildings, so that nothing remains in sight but the weather-cock of the church spire. Two hundred bodies have already been taken from the ruins. At Velez Malaga, the prison, churches, convents, and city hall have all been leveled to the ground.

METEORS.

Meteors were observed at the following places during the month:

Sacramento, California, 18th.

Archer, Florida, 15th.

Vevay, Indiana, 13th.

Cedar Rapids, Iowa, 13th, 17th.

Allison, Kansas, 10th, 30th.

Richmond, Kentucky, 3d.

Woodstock, Maryland, 7th, 8th, 10th, 12th, 13th, 17th, 19th.

Rowe, Massachusetts, 13th.

Readington, New Jersey 10th.

Weldon, North Carolina, 11th.

Fort Dodge, Iowa, 20th.

Stateburg, South Carolina, 10th, 12th, 29th.

Strafford, Vermont, 5th.

Marion, Virginia, 7th.

Blacksburg, Virginia, 8th.

Sussex, Wisconsin, 17th.

POLAR BANDS.

Archer, Florida, 2d, 17th, 28th.

Riley, Illinois, 8th, 18th, 19th, 22d.

Guttenberg, Iowa, 2d.

Gardiner, Maine, 4th, 25th.

Amherst, Massachusetts, 19th.

Moorestown, New Jersey, 9th.

Mountainville, New York, 19th, 21st.

Wauseon, Ohio, 3d, 5th, 14th, 18th, 19th, 29th.

Providence, Rhode Island, 13th.

Point Judith, Rhode Island, 19th, 20th.

Stateburg, South Carolina, 17th, 29th.

Nashville, Tennessee, 2d, 3d, 5th.

Rio Grande City, Texas, 6th, 24th, 27th.

El Paso, Texas, 2d, 5th, 12th, 13th, 17th, 20th.

Dale Enterprise, Virginia, 3d, 14th, 18th, 23d.

Wytheville, Virginia, 3d, 14th, 19th, 23d, 29th.

Variety Mills, Virginia, 17th.

WATER-SPOUTS.

The brig "Lilian," H. F. Schive, master, in about N. 17° 52', W. 60° 10', on January 4th, saw a water-spout which remained visible about five minutes.

The s. s. "Nürnberg," A. Jaeger, commanding, in N. 38° 04', W. 71° 00', at 4 p. m. on January 22d, passed a water-spout.

MIGRATION OF BIRDS.

Geese flying southward.—Bismarck, Dakota, 5th; Kitty Hawk, North Carolina, 7th; Roseburg, Oregon, 5th; Austin, Tennessee, 25th; Lynchburg, Virginia, 11th.

Geese flying northward.—Augusta, Georgia, 29th; West Leavenworth, Kansas, 10th; Roseburg, Oregon, 11th.

PRAIRIE FIRE.

Fort Reno, Indian Territory, 2d.

NOTES AND EXTRACTS.

The following extract is from the January, 1885, report of the "Alabama Weather Service," under direction of Prof. P. H. Mell, jr.

January opened the year with most remarkable weather, noted for sudden and great extremes. Five cold waves passed over the state, previously predicted by the Chief Signal Officer with great accuracy. Comparatively few days of the month were mild and pleasant, as there were only three days without rain. The temperature was 5° below the normal, while the rainfall was about 4 inches above the average. Sections of the state suffered severely by the visitation of tornadoes on the afternoon and evening of the 11th. The destruction of life and property was great, and many singular and narrow escapes were made. This cyclonic condition occurred just after the low depression reported by the signal service in Nebraska, and the tornadic influences in Alabama were evidently due to the effort of the atmosphere to restore the equilibrium destroyed by this depression. This tornado was immediately followed by a reduction of temperature of from 15° to 20°.

The month generally has been unfavorable for farm and garden operations; the unusual amount of rainfall, accompanied by so much freezing weather, kept the soil in a condition unfavorable for ploughing or working. The early gardens are consequently very backward; oats are reported killed in some portions of the state.

State summary.

Mean temperature, 42°.8; highest temperature, 76° at Suggsville on the 15th; lowest temperature, 7° at Tuscombina on the 22d; range of temperature, 69°; greatest monthly range of temperature, 66° at Clintonville; least monthly range of temperature, 41° at Chattanooga; mean daily range, 11°; greatest daily range of temperature, 41° at Edwardsville on the 17th; least daily range of temperature, 0° at Fayette on the 24th.

Mean depth of rainfall, 8.61 inches; mean daily rainfall, 0.278 inch; greatest depth of monthly rainfall, 12.32 inches at Clintonville; least depth of monthly rainfall, 6.25 inches at Carrollton; greatest daily rainfall, average for the state, 1.28 inches, on the 23d; greatest daily rainfall, 4.07 inches at Clintonville on the 23d.

Days of general rainfall, 5th, 11th, 16th, 23d, 24th; average number of days on which rain fell, 10; average number of cloudy days, 16; average number of fair days, 8; average number of clear days, 7; warmest days, 15th and 16th; coldest days, 2d, 17th, 18th, and 22d.